

### Abstract of the Disclosure

[0059] A method and apparatus for predicting instruction results in a program using the compiler are described. In one embodiment, the method includes creating a data flow graph associated with the program, identifying a target instruction that is to be executed after a producer instruction, and determining that the outcome of the target instruction is dependent on the outcome of the producer instruction using the data flow graph. The outcome of the producer instruction represents a key into a software structure that includes a set of keys and a corresponding set of predicted outcomes of the target instruction. The method further includes inserting an additional instruction that will retrieve a predicted outcome of the target instruction from the software structure based on the outcome of the producer instruction. The additional instruction will be executed after the producer instruction and before the target instruction.